DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 5/05/2005 is being considered by the examiner.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 4 recites the limitation "The method as claimed in claim 1, wherein the gas with the highest compression capacity is compressed in the highest compression stage." There is insufficient antecedent basis for this limitation in the claim. The examiner notes that the specification describes a system wherein the highest compression stage also has the highest compression capacity. In the specification the description of having the highest compression capacity is applied to the compression stage and not the gas itself. In anticipation of the applicant amending the claim to reflect the specification, claim 4 is interpreted to recite "the method in claim 1, wherein the

highest compression stage also has the highest compression capacity", and examined under this interpretation.

6. Claim 6 recites the limitation "The method as claimed in Claim 1, wherein nitrogen, argon, and helium." The examiner notes that the preceding limitation is incomplete because of the lack of a method step. The examiner further notes that the applicant amended the claim to eliminate the phrase ", or other mixtures are compressed" which formerly followed the claim as recited above. The presence of this phrase causes the claim to read "The method as claimed in Claim 1, wherein nitrogen, argon, helium or other mixtures are compressed." Therefore, the examiner interprets claim 6 to include the above language, in order that it can be examined and prior art applied.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 3, 6, 7, 8, 10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Lhote et al. (US Patent 5,158,625).

9. In Re claims 1, 3, 6 and 11 the examiner notes that a method claim is considered anticipated if a prior art apparatus would, in the course of everyday use and operation, necessarily perform the method (MPEP 2112.02).

10. In Re claim 1 with reference to Figure 1 Lhote discloses a high pressure container (2) (Column 4, line 12) a closed chamber (1) (Column 3, line 39). A high compression stage (14) (Column 4, lines 59-63) which returns the gas to the high pressure chamber until the gas pressure falls below an inlet pressure limit value (Column 4, Lines 25-26), a low compression stage (5) (Column 4, Lines 25-26) which feeds into the inlet of the high compression stage (Column4, Lines 27-29) for further return to the high pressure chamber.

11. In Re claim 3 Lhote discloses an apparatus wherein the individual compression stages are supplied with gas directly according to the falling evacuation pressure of the chamber (Column 4, lines 16-27).

12. In Re claim 6 Lhote discloses an apparatus wherein helium is compressed (Column 4, lines 22-24).

13. In Re claim 7 with reference to Figure 1 Lhote discloses a high pressure container (2) (Column 4, line 12) a closed chamber (1) (Column 3, line 39). A high compression stage (14) (Column 4, lines 59-63) which returns the gas to the high pressure chamber until the gas pressure falls below an inlet pressure limit value (Column 4, Lines 25-26), a low compression stage (5) (Column 4, Lines 25-26) which feeds into the inlet of the high compression stage (Column4, Lines 27-29) for further return to the high pressure chamber, isolation devices in each gas line between each compression stage and the closed container (27) (7) (10) (13). The examiner notes that the claimed switching unit is inherent in the Lhote apparatus even though not

specifically detailed. The Lhote apparatus could not perform as it does without the presence of a switching unit (Column 4, lines 8-67).

14. In Re claim 8 the examiner notes that the Lhote apparatus performs various operations in response to the pressure in the closed chamber (Column 4, lines 25-26). Therefore, the presence of a pressure sensor is indicated, if not explicitly stated.

15. In Re claims 10 and 11 Lhote discloses an apparatus for heat treating articles while hardening in a gaseous medium (title), which is a heat treatment quenching process. With reference to Figure 1 the closed chamber 1 is refereed to as a hardening furnace (Column 3, lines 38-39). The examiner also notes that claims 10 and 11 represent intended use language which carries no patentable weight unless it results in a structural difference (MPEP 2111.02 II).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. In Re claims 2, 4, and 5 the examiner notes that a method claim is considered anticipated if a prior art apparatus would, in the course of everyday use and operation, necessarily perform the method (MPEP 2112.02).

18. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lhote.

19. In Re claim 5 Lhote discloses the claimed invention except for: "the method as claimed in Claim 1 wherein the pressure in the chamber is between 6 and 60 bar at the

beginning of gas recovery and the pressure in the high-pressure container is between 8 and 62 bar". It would have been obvious to one having ordinary skill in the art at the time the invention was made to use this pressure range, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch,* 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Furthermore the examiner notes that the pressure involved is based entirely on the requirements of the process taking place in the high pressure chamber, and does not affect the structure or method claimed by the applicant.

20. Claims 2, 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lhote in view of Grootjans (US Patent 6,637,238 B2).

21. In Re claim 2 Lhote discloses all the limitations, but doesn't disclose the use of a multistage compressor or a plurality of compressors connected in series. Grootjans in reference to Figure 1 discloses a multistage compressor comprising four compressors connected in series (10-13) (Column 3, lines 34-45). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus from Lhote with the addition of the multistage compressor from Grootjans, in order to eliminate the need for one large compressor to cover the entire pressure range to be handled.

22. In Re claim 4 Lhote discloses all the limitations, but doesn't disclose a method comprising the use of a high compression stage with the highest compression capacity of any of the compression stages. Grootjans discloses the use of a high compression

stage with the greatest compression capacity of any of the compression stages (Column 4, lines 13-19). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Lhote apparatus by making the high compression stage have the highest compression capacity, in order to most quickly compress the gas routed directly to the high compression stage.

23. In Re claim 9 Lhote discloses all the limitations but doesn't disclose multiple compressors connected in parallel. With reference to Figure 2 Grootjans discloses two compressors connected in parallel (31a and 31b) (Column 4, lines 34-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Lhote apparatus by adding the parallel compressors of Grootjans, in order to reduce the total capacity handled by any individual compressor (Column 5, Table).

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Schulte et al. (US Patent 5,390,533) discloses a system for recapturing and repressurising helium after it is used in a testing process.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON K. NIESZ whose telephone number is (571)270-3920. The examiner can normally be reached on mon-fri 9-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Nguyen can be reached on (571) 272-4491. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jason K Niesz
Examiner
Art Unit 4147

/George Nguyen/
Supervisory Patent Examiner, Art Unit 4147